

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The final Office Action dated August 16, 2006, has been received and its contents carefully reviewed.

Claims 1-8 and 11-19 are rejected by the Examiner. Claims 1 and 14 have been amended. Claims 1-8 and 11-19 remain pending in this application.

In the Office Action, claims 1-5, 8 and 11-13 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,236,163 to Maishev et al. (hereinafter "Maishev"). Claims 1, 2 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,449,051 to Berkowitz (hereinafter "Berkowitz"). Claims 7 and 14-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Maishev in view of U.S. Patent No. 5,770,826 to Chaudhari et al. (hereinafter "Chaudhari").

The rejection of claims 1-5, 8 and 11-13 is respectfully traversed and reconsideration is requested. Claims 1-5, 8 and 11-13 are allowable over the cited references in that each of these claims recites a combination of elements including, for example, "an ion beam source that is a predetermined distance from the substrate and that irradiates the substrate with an ion beam along the ion beam path, wherein the ion beam is discharged from the ion beam source with an incidence angle with respect to the ion beam source that is greater than about 0° and the emitting surface of the ion beam source is inclined to be substantially parallel with the substrate and wherein substantially all irradiated ions follow paths that are substantially parallel and straight." Maishev does not teach or suggest at least this feature of the claimed invention.

In Figure 5 of Maishev as cited by the Examiner, the ion beam paths diverge after they are emitted. Therefore, substantially all of the irradiated ions do not "follow paths that are substantially parallel and straight" as required by the present invention. Accordingly, claims 1-6, 8 and 11-13 are allowable over Maishev.

Further, claim 7 which depends from claim 1 is allowable over Maishev as well. The Examiner also cited Chaudhari against claim 7, and Chaudhari fails to cure the deficiencies of claim Maishev, therefore claim 7 is allowable over Maishev and Chaudhari, singly or in combination.

Regarding the rejection of claim 6, the Applicants question whether the Examiner intended to reject claims 1 and 2 as well as being anticipated by Berkowitz as claim 6 depends from claims 1 and 2. The rejection of claim 6, and if need be claim 1, is respectfully traversed and reconsideration is requested. Claims 1, 2, and 6 are allowable over Berkowitz in that each of these claims recites a combination of elements including, for example, “an ion beam source that is a predetermined distance from the substrate and that irradiates the substrate with an ion beam along the ion beam path, wherein the ion beam is discharged from the ion beam source with an incidence angle with respect to the ion beam source that is greater than about 0° and the emitting surface of the ion beam source is inclined to be substantially parallel with the substrate and wherein substantially all irradiated ions follow paths that are substantially parallel and straight.” Berkowitz does not teach or suggest at least this feature of the claimed invention.

In the Office Action, the Examiner does not appear to address claim 1 as previously amended, so the Examiner does not show how Berkowitz teaches each and every feature of the claimed invention. Further, in Berkowitz the ion beams are emitted by an ion source 8 and then are bent to finally reach item 36. Therefore, substantially all of the irradiated ions do not “follow paths that are substantially parallel and straight.” Accordingly, claims 1, 2, and 6 are allowable over Berkowitz.

The rejection of claims 14-19 is respectfully traversed and reconsideration is requested. Claims 14-19 are allowable over the cited references in that each of these claims recites a combination of elements including, for example, “producing ion beams to simultaneously irradiate the whole substrate with ions, wherein the ion beams strike the substrate with the same incidence angle and energy across the substrate, and wherein the ion beams all travel substantially the same distance and the incidence angle is greater than about 0° and wherein substantially all irradiated ions follow paths that are substantially parallel and straight.” None of the cited references including the Maishev and Chaudhari, singly or in combination, teaches or suggests at least this feature of the claimed invention. Claims 14-19 are allowable over Maishev for the same reasons as discussed above. Chaudhari fails to cure the deficiencies of Maishev. Accordingly, claims 14-19 are allowable over Maishev and Chaudhari.


Applicants believe the foregoing amendments place the application in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. § 1.136, and any additional fees required under 37 C.F.R. § 1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. *A duplicate copy of this sheet is enclosed.*

Respectfully submitted,

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